PLANT COMMUNITIES

ON BRUSH WELLMAN, INC.'S

TOPAZ MINING PROPERTY

023/003

September, 1985

Prepared for:

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67 West Century Pkwy.
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TABLE OF CONTENTS

INTRODUCTION

The Topaz Mining Property is in the Basin and Range Physiographic Province in west central Utah. Elevations range from 4600' in Fish Lake Valley to 6300' in the Spor Mountains. The vegetation is of the northern cold desert biome on soils derived mostly from volcanic parent material and some limestones. precipitation is interpreted at 6-8" annually. The beryllium open pit operations is clustered on the alluvial fans and lower foothills of the Spor Mountains (Map #1).

METHODS

Randomly located 100' line intercept transects were utilized initially to obtain data on plant communities. As plant community boundaries became evident additional subjectively placed line intercept transects were read to obtain sufficient data necessary to establish characteristics of each plant community. Plant identification and nomenclature follows Utah Plants, tracheophyta by Stan Welsh and Glen Moore.

RESULTS

Two plant communities and one ecotone were identified on the property. The plant communities generally follow the major soil series boundaries. The plant community on the foothills is located on shallow rocky gravelly clay loam soils while the plant community on the valley slopes is located on deep gravelly loam soils characteristic of alluvial slopes in the Basin and Range Province. The ecotone represents the transition from the hill community to the valley slopes community and is situated on the small low hills and basins located between the foothills and alluvial valley slopes.

1. Foothills Shrub/Grass Community

This plant community has the greatest percentage of groundcover on the property and was very consistent from site to site. The shrub community has a well established understory of galleta grass and bluebunch wheatgrass probably representing climax pre-settlement conditions. There appears to be an inverse relationship between the percentage of grass understory and the percentage of shrub cover. The present shrub cover probably represents a disclimax condition.

Transect Data

Transect #	groundcover	Percent of Litter	Rock	Bare
5	38.9	12.2	22.9	26.Ø
6	39.8	11.1	8.4	4Ø.7
9	37.4	16.2	16.5	27.9
15	34.Ø	15.Ø	4.5	46.5
16	37.4	1Ø.Ø	17.7	34.9
Mean	37.5	12.9	14.Ø	35.2

Transect #	Percent of Grass Cover	Percent of Shrub Cover	Percent of (1) Groundcover
16	26	11	37
5	25	13	38
15	16	18	34
9	17	2Ø	37
6	15	25	4Ø

(1) less than 1Ø% sampling error

Overstory

Shrub Species	Total # Plants	Total Cover %
broom snakeweed Gutierrezia sarothrae	121	28.Ø
spiny horsebrush Tetradymia spinosa	23	29.2
Nevada ephedra Ephedra nevadensis	12	7.6
black sagebrush Artemisia nova	1Ø	7.5
spiny hopsage Grayia spinosa	9	6.9
shadscale Atriplex confertifolia	6	7.1

Percent Groundcover: Range = 11.2-24.5%
Mean = 17.4%

Understory

Grass Species	Total # Plants	Total Cover %
galleta Hilaria jamesii	195	65.5
bluebrunch wheatgrass Agropyron spicatum	74	32.4
Indian ricegrass Oryzopsis hymenoides	2	1.5
squirreltail Sitanion hystrix	1	Ø.2
cheatgrass Bromus tectorum	1	Ø.1

Percent Groundcover: Range = 15.1-26.1
Mean = 19.9

Forb Species

Antennaria sp., Cirsium sp., Cryptantha sp., Erigeron sp., Lygodesmia sp., Phlox sp.

Percent Groundcover: Range = Ø.1-Ø.6
Mean = Ø.24

2. Alluvial Slopes Shrub/Grass-Forb Community

The number and percent of groundcover for shrubs was very consistent between transects but the shrub cover component was less than on the hill shrub community. The forbs composed a greater part of the understory than in the hill shrub community. The amount of understory cover was variable between transects. Galleta grass was dominant in some sites but was absent from other transect sites. The valley slopes appeared to be more disturbed by past land practices than the hills.

Transect Data

Transect #	Groundcover	Percent of Litter	Rock	Bare
1	16.5	10.1	0.2	73.2
2	22.7	18.8	0.8	57.7
3	27.8	23.8	1.0	47.4
10	36.3	9.9	0.2	53.6
12	18.3	12.7	0.6	68.4
Mean	24.3	15.1	0.6	60.1

Overstory

Shrub Species	Total # Plants	Total Cover %
shadscale Atriplex confertifolia	33	27.0
spiny horsebrush Tetradymia spinosa	16	20.8
broom snakeweed Gutierrezia sarothrae	20	12.2
fringed sage Artemisia frigida	20	6.5
white sage Ceratoides lanata	19	5.0
Nevada ephedra Ephedra nevadensis	6	4.1
seepweed Sueada sp.	9	2.6

Percent Groundcover: Range = 13.7-18.0
Mean = 15.6

Understory

Grass Species	Total # Plants	Total Cover %
galleta Hilaria jamesii	21	17.8
cheatgrass Bromus tectorum	27	8.4
squirreltail Sitanion hystrix	16	6.4
Indian ricegrass Oryzopsis hymenoides	11	5.4
sand dropseed Sporobolus cryptandrus	4	1.7

Percent Groundcover: Range = 2.Ø-18.2
Mean = 7.9

Forb Species: Halogeton glomeratus, Lepedium perfoliatum, Sphaeralcea grossulariafolia, unks.

Percent Groundcover: Range = Ø.1-1.6
Mean = Ø.74

3. Ecotone

The ecotone community shares plant species with the adjacent hill and valley slopes plant communities. Their is an increase in the number of plant species in the overstory. Galleta grass is dominate on the few sites where it occurs. Bluebunch wheatgrass is not present in the understory.

Transect Data

Transect #	% Groundcover	% Litter	% Rock	% Bare
11	22.8	7.3	Ø.Ø	69.9
13	3Ø.1	2.8	2.1	65.Ø
14	28.5	3.7	Ø.3	67.5
Mean	27.1	4.6	Ø.8	67.5

Overstory

Shrub Species	Total # Plants	Total Cover %
broom snakeweed Gutierrezia sarothrae	19	20.3
spiny horsebrush Tetradymia spinosa	19	16.7
black sagebrush Artemisia nova	6	7.3
Nevada ephedra Ephedra nevadensis	3	5.7
shadscale Atriplex confertifolia	3	2.1
rubber rabbitbrush Chrysothamnus nauseosus	1	0.7
seepweed Sueada sp.	1	0.5
fringed sage Artemisia frigida	1	0.4

Percent Groundcover: Range = 13.7-25.2
Mean = 19.7

Understory

Grass Species	Total # Plants	Total Cover %
galleta Hilaria jamesii	23	16.0
cheatgrass Bromus tectorum	4	0.4
Indian ricegrass Oryzopsis hymenoides	1	2.3
squirreltail Sitanion hystrix	1	0.4

Percent Groundcover: Range = 0.9-16.1
Mean = 6.6

Forb Species: Cryptantha sp., Descuraina sp., Erigeron sp., Halogeton glomeratus, Sphaeralcea grossulariafolia

Percent Groundcover: Range = Ø.3-1.6
Mean = Ø.8

PLANT LIST

Trees

Juniperus osteosperma

Shrubs

Artemisia nova
Artemisia frigida
Atriplex canescans
Atriplex confertifolia
Ceratoides lanata
Chrysothamnus nauseosus
Chrysothamnus viscidiflorus
Ephedra nevadensis
Grayia spinosa
Gutierrezia sarothrae
Lycium sp.
Sueada sp.
Tetradymia spinosa

Forbs

Astragalus sp.
Cryptantha sp.
Chaenactis macrantha
Cirsium sp.
Descuriana sp.
Erodium cicutarium
Erigeron sp.
Eriogonum sp.
Halogeton glomeratus
Lepidium perfoliatum
Lygodesmia sp.
Medicago sativa
Melilotus officinalis
Penstemon sp.
Phacelia sp.
Phlox sp.
Salsola kali
Sphaeralcea grossulariafolia
Stanlyea sp.

Grasses

Agropyron cristatum
Agropyron spicatum
Bromus tectorum
Hilaria jamesii
Hordeum jubatum
Oryzopsis hymenoides
Sitanion hystrix
Sporobolus cryptandrus

This page is a reference page used to track documents internally for the Division of Oil, Gas and Mining

Mine Permit Number M0230003 Mine Name Topaz Mining Property
Operator Brush Wellman, Inc. Date January 12, 1987
TO _____ FROM _____

__CONFIDENTIAL __BOND CLOSURE __LARGE MAPS X EXPANDABLE
__MULTIPUL DOCUMENT TRACKING SHEET __NEW APPROVED NOI
__AMENDMENT _OTHER _____

Description YEAR-Record Number

__NOI X Incoming __Outgoing __Internal __Superceded

Plant Communities
2 Reports

___NOI __Incoming __Outgoing __Internal __Superceded

__NOI __Incoming __Outgoing __Internal __Superceded

__NOI __Incoming __Outgoing __Internal __Superceded

__TEXT/ 81/2 X 11 MAP PAGES __11 X 17 MAPS __LARGE MAP

COMMENTS: _____

CC: _____